Project title: Spotted Wing Drosophila Working Group to Identify and Prioritize Research and Extension Needs

Lead project director:
Juliet Carroll, NYS IPM Program, Cornell University

Project Co-directors:
Greg Loeb, Entomology, Cornell University
Cesar Rodriguez-Saona, Entomology, Rutgers University
Anne Nielsen, Entomology, Rutgers University
Dean Polk, Integrated Pest Management, Rutgers University

Project type: IPM Working Group

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Project Categorization Data
Target Pest: spotted wing drosophila
Target Crops: blueberries, cherries, grapes, nectarines, peaches, raspberries, and strawberries
IPM Tools: Education, IPM Priorities and IPM Guidelines
Northeastern IPM Center Signature Program: Rural and Urban IPM - Agriculture

Project Summary

The problem
Spotted wing drosophila (SWD) continues to be a serious challenge for fruit growers in the Northeast and elsewhere. To protect fruit from egg-laying adults, repeated applications of insecticides have become the norm, from the onset of ripening through harvest.

The rationale for the project
We anticipate that SWD will continue to occur yearly in the Northeast placing berry crops and potentially stone fruit and grapes at recurring high risk of damage. Significant damage and increased pesticide use have become routine occurrences since 2012. We need to continue to address this new challenge through the SWD IPM Working Group and update, refine and identify priorities. Through this process the Working Group (growers and other industry representatives, researchers, extension educators, and regulators) will increase grower awareness of the pest, develop new management approaches, and share those with the fruit industry.

The overall goal
Our goal is to continue our working group comprised of scientists, extension educators, growers, and other stakeholders to develop and share research, regulatory, education and extension priorities and resources for addressing SWD, a major and significant invasive pest of fruit crops to foster development and adoption of IPM and address economic, environmental and human health issues.

Objectives and outcomes

1. *Increased networking among individuals and/or groups*. Facilitated and achieved during two region-wide Working Group meetings.
2. *Setting research, extension, education, and regulatory priorities to address SWD*. These were advanced and made available on the SWD IPM Working Group website, www.northeastipm.org/working-groups/spotted-wing- drosophila/.
3. *Develop resources*. Two IPM guides for SWD – one for blueberry and one for raspberry & blackberry were written and are in press at Northeastern IPM Center and will be published on the SWD IPM Working Group website, www.northeastipm.org/working-groups/spotted-wing- drosophila/.
4. *Share resources*. Priorities, presentations, membership, and IPM guides are shared via the SWD IPM Working Group website, www.northeastipm.org/working-groups/spotted-wing- drosophila/. The IPM guides for blueberry and for raspberry and blackberry, will have numerous high quality photos that will help growers, consultants, and extension educators identify SWD, learn about monitoring, and recognize symptoms of fruit infestation.

Demographics and Target Audience

Size: 500-999

Locations represented: Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, Quebec Province, and Ontario Province

Demographics of SWD IPM Working Group participants: extension educators, growers, industry regulators, organic association representatives, researchers, state and federal policy makers, students, private consultants

IPM Working Group Outputs

Activities
We held yearly one-day-long meetings wherein we updated, refined and ranked SWD priorities; shared extension and research reports; and hosted SWD guest researchers from other regions to share nationwide SWD project information. Working Group members used SWD working group priorities to justify grant proposals; shared SWD resources, information, and knowledge then used to educate growers; and incorporated advanced SWD IPM knowledge into regional pest management guidelines. The Working Group Co-PI's developed IPM guides for fruit at greatest risk - blueberry, raspberry and blackberry. We featured a grower panel during the yearly SWD IPM Working Group meetings to enhance farmer attendance and participation.

Educational Materials and Other Outreach Methods

Website
Spotted Wing Drosophila IPM Working Group (www.northeastipm.org/working-groups/spotted-wing-drosophila/), 2012 to current, all our meeting materials, SWD priorities, reports, presentations, and member lists are found here. Estimated reach: 900 people.

Publications
G. Loeb, J. Carroll, N. Mattoon, C. Rodriguez-Saona, D. Polk, L. Mc Dermott and A. Nielsen. 2018. Spotted Wing Drosophila IPM in Raspberries and Blackberries. Northeastern IPM Center.

10 pp. (in press)

C. Rodriguez-Saona, J. Carroll, N. Mattoon, D. Polk, G. Loeb, L. Mc Dermott and A. Nielsen. 2018. Spotted Wing Drosophila IPM in Blueberries. Northeastern IPM Center. 10 pp. (in press)

Leveraged Funds

At Cornell University alone, faculty leveraged over half a million dollars in additional funding to address SWD because of the information yielded by this Northeastern IPM Center-funded project.

Grants
Weber et al, 2018-2019 Cornell Berry Research, NYS AG & MKTS, 4/1/18, $260,000, 1 year.
Loeb et al, 2017 Cornell Berry Research, NYS AG & MKTS, 4/1/17, $260,000, 1 year.

IPM Working Group Outcomes

The SWD IPM Working Group yearly day-long meetings provided a venue for sharing new research knowledge and reviewing existing knowledge to identify priority needs for addressing the management of this invasive insect pest. The SWD IPM Working Group fostered a network of extension educators and faculty, researchers, regulatory personnel, private consultants, and growers who in turn served as multipliers for accurate and up-to-date SWD IPM information exchange throughout the Northeastern US and Canada. In 2016 and 2018, respectively, our meeting evaluation found that attendees benefited from research updates (93% and 100%), extension status reports (80% and 65%), establishing new and continued connections with colleagues (67% and 76%), SWD priorities (60% and 53%), knowledge about SWD impact in other regions (60% and 59%), ability to voice concerns about SWD's impact (47% and 47%), updates on regulatory issues (40% and 65%), information on SWD management (33% and 94%), and priorities to help with grant funding (13% and 29%).

Impacts

Through the development and setting of SWD IPM priorities, current and potential SWD IPM strategies were identified, crops at greatest risk were identified, and gaps in knowledge found. Proposals to address high priority research and extension needs were funded, improved IPM guidelines for SWD were distributed and growers were educated about IPM tactics for SWD throughout the Northeastern US and Canada. Although SWD still threatens fruit production in the Northeast, major steps have been made toward IPM approaches for SWD that use cultural, sanitation, and monitoring tactics to reduce the reliance on chemical tactics and the Working Group network helped disseminate this information. The SWD IPM practices can help protect at-risk fruit crops, but we have a long way to go before growers no longer have to rely on insecticidal management of SWD. Growers now have learned about some IPM tactics to reduce potential risks to the environment, their bottom line, and worker and consumer exposure from repeated and frequent pesticide applications for SWD.

USDA United States Department of Agriculture National Institute of Food and Agriculture

Northeastern IPM Center

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